

## Welcome:

Dear user, thanks for purchasing this product.

Much investment in time and effort has gone into its development, and it is our hope that it will give you many years of trouble-free service.

## Safety Notice:

1. Do not drop, puncture or disassemble the device; otherwise the warranty will be voided.
2. Avoid all contact with water, and dry hands before using.
3. Do not expose the device to high temperature or leave it in direct sunlight. Doing so may damage the device.
4. Use the device with care. Avoid pressing hard on the device.
5. For your own safety, avoid using the device when there is a storm or lightning.
6. Do not use batteries of different specifications. Doing so may lead to the potential for serious damage.
7. Remove the battery during long periods between usage, as a deteriorated battery may affect the functionality of the device.
8. Remove the battery if it shows signs of leaking or distortion.
9. Use only the accessories supplied by the manufacturer.
10. Keep the device out of the reach of infants.
11. Risk of explosion if battery is replaced by an incorrect type.
12. Dispose of used batteries according to the instructions.

## FCC Compliance Statement:

This device complies with Part 15 of the FCC Rules. Operation is subjected to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



This equipment has been tested and found to comply with limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television equipment reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Move the equipment away from the receiver.
- Plug the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for additional suggestions.

You are cautioned that any change or modifications to the equipment not expressly approved by the party responsible for compliance could void Your authority to operate such equipment.



If the time arises to throw away your product, please recycle all the components possible.

Batteries and rechargeable batteries are not to be disposed in your domestic waste! Please recycle them at your local recycling point.

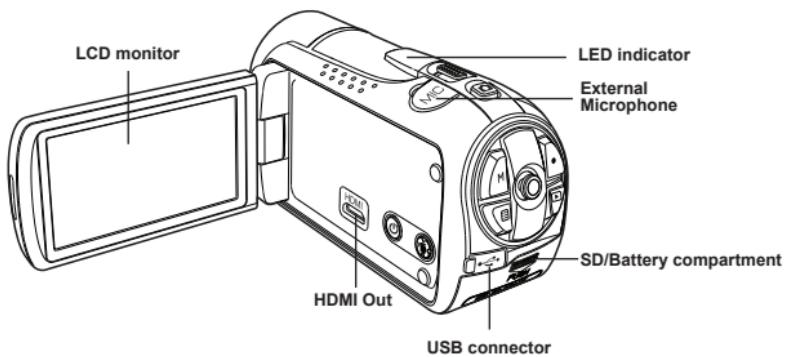
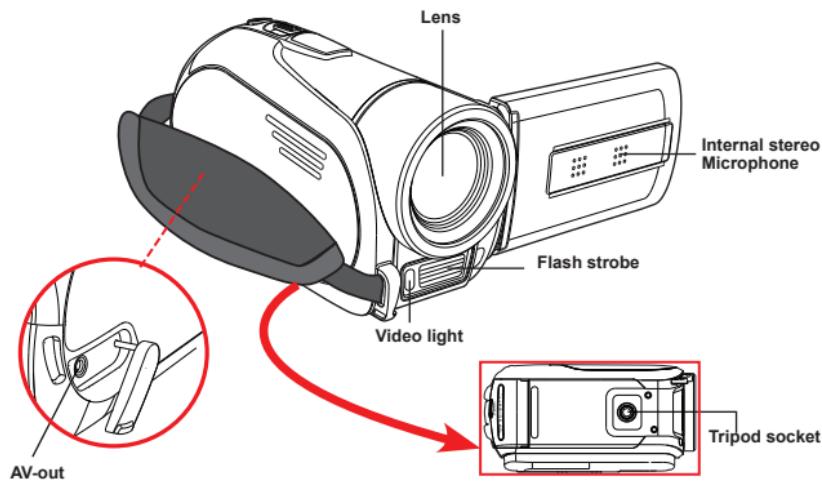
Together we can help to protect the environment.

# Table of Contents

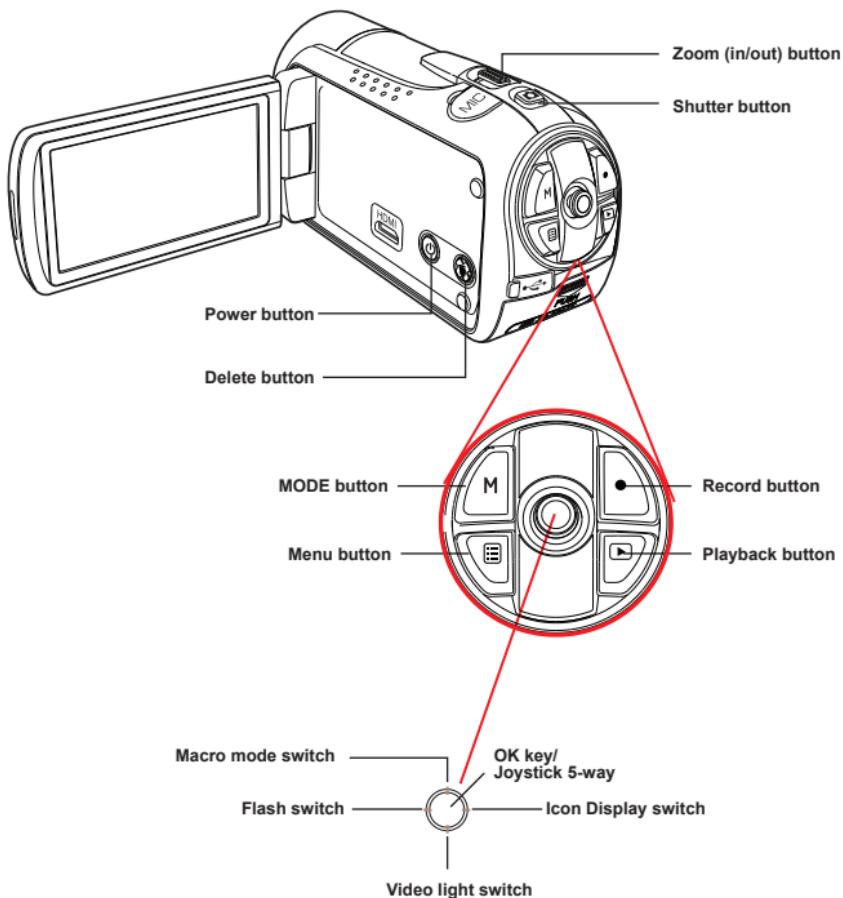
<b>Getting Started.....</b>	<b>1</b>
Knowing your camcorder parts .....	1
Buttons Introduction.....	2
Installing the battery.....	3
Charging the battery .....	3
Inserting a memory card (optional).....	3
Turning on/off your camcorder.....	3
Setting language.....	4
Reading LCD indicators.....	4
<b>Basic Operations .....</b>	<b>5</b>
Recording a video clip .....	5
Recording a voice clip.....	6
Taking a still picture .....	7
Playing back your recordings.....	8
Playing back your recordings on PC.....	9
Connecting the camcorder to TV .....	10
<b>Advanced Operations .....</b>	<b>12</b>
Menu items in Camera mode.....	12
Menu items in Setting mode .....	14
Battery Life Indicator.....	15
Battery Life.....	15
Storage Capacity.....	16
System Requirements .....	16
Specifications.....	17

# Getting Started

## ● Knowing your camcorder parts



## ● Buttons Introduction



## ● Installing the battery

1. Press the **Push** button first and slide the battery compartment cover down.
2. Place the accessory Li-Ion battery into the compartment until it is locked by the latch. Note that the metallic contacts must be aligned with the contacts in the compartment.
3. After the battery is properly installed, close the battery compartment cover.



## ● Charging the battery

Please charge the battery for at least 8 hours prior to its first use. Afterwards, it will take approximately 3 hours to fully charge the battery by AC adapter.

1. Connect the cable.  
Connect one end of the supplied AC adapter to the USB port of the camcorder and the other end to a wall outlet.

**OR**

Connect one end of the supplied USB cable to the USB port of the camcorder and the other end to a powered PC. Make sure the camcorder is powered off.



2. The charging LED turns red and the charge starts.
3. When the battery pack is fully charged, the charging LED will turn green.

**!** When using a PC to charge the battery, do not power on the camcorder, or the charge will stop.

## ● Inserting a memory card (optional)

To insert a memory card, do the following:

- (1) Press the **Push** button first and slide the battery compartment cover down.
- (2) Gently push the card with the connectors (golden fingers) to the top until the card reaches the bottom of the slot.  
To remove the memory card, gently push the card and it will pop up. Then pull the card out of the slot.



## ● Turning on/off your camcorder

Open the LCD monitor or press and hold down the **Power** button for 1 second to turn on the camcorder.

To turn off the camcorder, press and hold down the **Power** button for 1 ~ 3 seconds or close the LCD monitor.

**!** If the camcorder stays inactive for a long period of time, it may automatically shut down due to the Auto-Off setting.

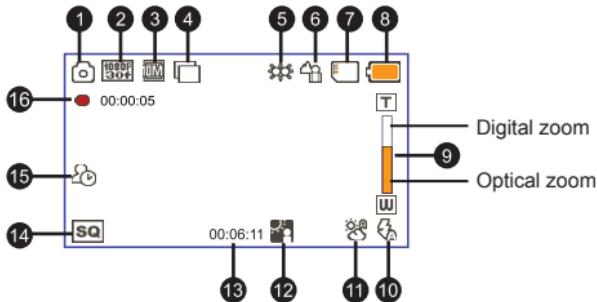
# Setting language

1. Power on the camcorder.
2. Press the **MODE** key to enter the **MODE** menu.
3. Use the **Joystick** switch to select the **Settings** mode and press **OK** to enter the menu screen.
4. Use the **Joystick** to select the **Language** item, and then Press **OK** to confirm.
5. Move the **Joystick** up/down to select a language.
6. When done, press **OK** to confirm the setting.



OK key /  
Joystick 5-way

# Reading LCD indicators



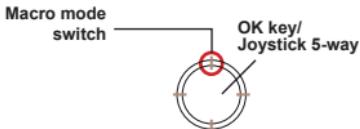
<b>1</b> Mode icon	<b>9</b> Zoom ratio indicator
<b>2</b> Video resolution	<b>10</b> Flash
<b>3</b> Picture resolution	<b>11</b> White balance
<b>4</b> Continuous shot	<b>12</b> Backlight compensation mode
<b>5</b> Video light mode	<b>13</b> Remaining recordable time
<b>6</b> Focus	<b>14</b> Video quality mode
<b>7</b> Internal memory/SD card inserted	<b>15</b> Selftimer
<b>8</b> Battery life	<b>16</b> Recording time

# Basic Operations

## Recording a video clip

### 1. Adjust the focus:

Normally the camcorder can auto focus without adjusting focus. If you want to take close-up pictures, you can use the Joystick to move up to switch to Macro mode (  ).



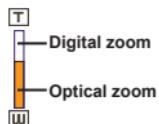
### 2. Adjust the zoom:

Move the **Zoom** button left or right to zoom in or zoom out the screen.

As you zoom in all the way, the zoom bar may get stuck on the bar line.

You can push Zoom-in (T) button again to enter digital zoom.

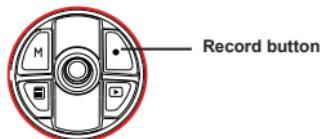
The camcorder has a built-in 120X Zoom (12X optical zoom and 10X digital zoom), allowing you to capture great quality images, even at a distance.



### 3. Press the **Record** button to start recording.

### 4. Press the **Record** button again to stop recording.

### 5. While recording, press the button to pause recording, and press the button again to resume recording.



### 6. Picture in Video (PIV)

During recording, you can capture images by pressing the **Joystick** switch. The image you captured will appear the same resolution as the one you set for still picture.

### 7. Electronic Image Stabilization (E.I.S.) / Gyroscopic Video Stabilization (G.V.S.)

The camcorder has built-in electronic stabilizer to eliminate blurring from hand shake.

You may select the appropriate video resolution for your situation by pressing the **Menu** button, then use the Joystick button to select the **Video resolution** item, and then press **OK**.

Following introduction is about the video resolution settings suitable for different scenarios:

- 1) 1080i 60f (1920x1080): allows you capture high-speed motion at 60f per second with crystal-clear quality, minimizing the delay and instability.
- 2) 1080P 30f (1920x1080): allows you to capture crystal-clear video that you will later playback on the HDTV.
- 3) 720P 60f (1280x720): allows you to capture high speed motion at 60 frames per second with standard HD quality.
- 4) 720P 30f (1280x720): for recording standard HD videos.
- 5) WQVGA 60fps (432x240): allows you to capture extreme high-speed motion at 240 frames per second that you will see each details by playing back in slow motion.



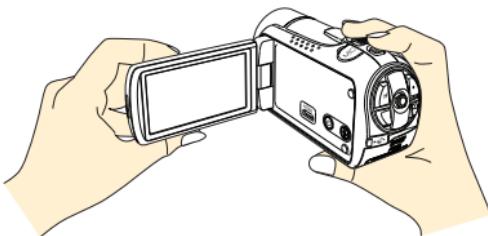
- ! The zoom function is not available in macro mode.
- ! The digital zoom function is not available in WQVGA 240f.
- ! It's normal that the camcorder will feel slightly warm with continuous use / recording due to its high performance.
- ! 1080i is interlaced scan, which typically produces 60 fields per second. 60 fields automatically converts to 30 frames when viewed on PC player. So the PC player information will indicate it's 30 frames per second instead of 60 fields per second.

## ● Recording a voice clip

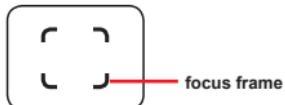
1. Power on the camcorder.
2. Press the **MODE** key to enter the **MODE** menu.
3. Use the **Joystick** switch to select the **Voice Recorder** mode and press **OK** to enter the menu screen.
4. Press the **Record** button to start recording
5. Press the **Record** button again to stop recording.

## ● Taking a still picture

1. Adjust the focus:  
Normally the camcorder can auto focus without adjusting focus. If you want to take close-up pictures, you can push the Joystick button up to switch to Macro mode (  ).
2. Zooming:  
Move the **Zoom** button up or down to zoom in or zoom out the screen.
3. For better image quality, it is recommended that you hold the LCD panel steadily to avoid the image from blurring caused by hand shake.



4. Press the **Shutter** button half way down and hold for the camcorder to auto focus. When the focus frame turns green, press the button fully down to take a still picture.



 The picture aspect ratio is 16:9.

5. When taking long distance pictures with the digital zoom function, the use of a tripod is recommended to minimize the slight blurring camera shake caused by subtle hand motion.

## ▣ Continuous shots

While in preview mode you can capture continuous images (at video resolution) by pressing the joystick straight (OK key). The camcorder will continuously snap 10 pieces of shots per click until the memory is full.

 Still picture and continuous shots function are not available in WQVGA 240f.



OK key /  
Joystick 5-way

# ● Playing back your recordings

1. Press the **MODE** button and use the **Joystick** to switch to “My Works” mode.
2. There are two folders below **My works: Video, Picture**. Select Video, or Picture, and then press the **OK** key to enter the index mode.
3. Operations in playback mode:

File type	How to...	Action
Index mode 	Shift between Index mode and Full-screen mode	In Index mode, press the <b>OK</b> key to switch to Full-screen mode. In Full-screen mode, press the <b>MODE</b> button to switch to Index mode.
Full-screen mode 	Shift between files	1. In Index mode: Use the <b>Joystick</b> to move the highlight box. 2. In Full-screen mode: Use the <b>Joystick</b> to move left or right.
Video	Start playing	When selected (in full-screen mode), the file automatically starts playing.
	Pause/Resume playing	During playing/While paused, press the <b>OK</b> key.
	Adjust the volume level	During playing, use the <b>Joystick</b> to move up or down.
	Stop playing	During playing, press the <b>MODE</b> button.
	Return to the preview screen	Press the <b>Shutter</b> button.
	Fast forward	During playing, use the <b>Joystick</b> to move right. To stop, press the <b>MODE</b> button.
	Fast backward	During playing, use the <b>Joystick</b> to move left. To stop, press the <b>MODE</b> button.
	Zoom	During playing, use the Zoom button to zoom in/out.
Picture	Adjust playback speed	Press <b>OK</b> key to pause, then use the <b>Joystick</b> to move up/down to adjust the playing speed at x1, x2, x1/2, x1/4, x1/8, or x1/16 speed. Press <b>OK</b> key again to resume playing.
	Zoom in/out	Use the <b>Joystick</b> to move up or down.
	Lock/Release zoom ratio	When the zoom ratio is greater than 1.0x, press the <b>OK</b> key.
	Browse the enlarged picture	When the zoom ratio is locked, use the <b>Joystick</b> to browse the picture.

! If you want to preview the just recorded videos/pictures, press the  button to see the full screen instant playback. If you want to exit, press  button or MODE button.

## ● Playing back your recordings on PC

### ☒ Installing software

Please notice that the recorded videos are .mov format. So you need some special programs like QuickTime 8.x (or above) to view the recordings on PC. Or please install the Total Media Extreme software on the bundled CD.

### ☒ Connecting to PC and Saving files

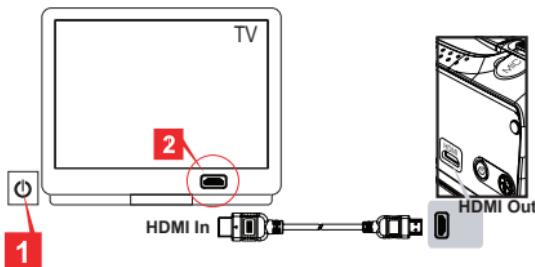
After the software is properly installed on your PC, please turn on the camcorder and connect the camcorder (with SD card inserted) to your computer with the USB cable.

- ! If recorded with 720P 30f (or above) mode, an additional file in smaller size (WQVGA 30f) named filexxxx\_SMALL.mov will be generated automatically, which allows users to share files by e-mail or uploading to website easily. In addition, the smaller size file is also compatible with iPod.

## ● Connecting the camcorder to TV

### ▣ Connecting the camcorder to HDTV

TV: HDTV with HDMI input port

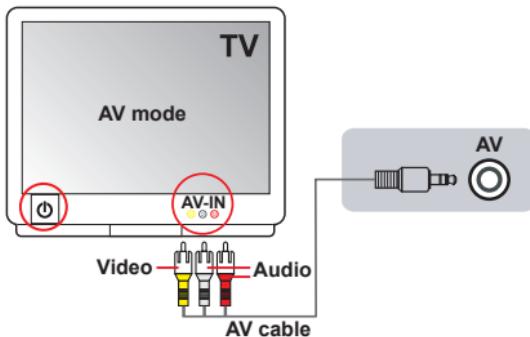


1. Turn on your HDTV.
2. Connect the HDMI-in connector (the bigger end) of the HDMI cable to the HDTV.
3. Turn on the camcorder.
4. Connect the other end of the HDMI cable to your camcorder.
5. Switch the HDTV to the “HDMI input” mode.

! The HDTV will display your video clips in 1080i (60 fields) resolution mode even though it is recorded in 1080P (30 frames) setting.

## ▣ Connecting the camcorder to Standard TV

TV = Traditional TV



1. Power on your TV and switch the TV to AV mode.
2. Connect the audio and video ends of the AV cable (yellow/white/red color) to the TV "AV-IN" jacks.
3. Power on the camcorder.
4. Connect the other end of the AV cable to the "AV" port on your camcorder. When the pop-up message appears on the screen, please select "AV-Out".

# *Advanced Operations*

## ● Menu items in Camera mode

Power-on → Press the **Menu** button.

Item	Option	Description
Video Resolution	1080i 60f	Set the video resolution to 1080i 60f (1920x1080 pixels).
	1080P 30f	Set the video resolution to 1080P 30f (1920x1080 pixels).
	720P 60f	Set the video resolution to 720P 60f (1280x720 pixels).
	720P 30f	Set the video resolution to 720P 30f (1280x720 pixels).
	WQVGA 240f	Set the video resolution to WQVGA 240f (432x240 pixels).
Picture Resolution	3M	Set the picture resolution to 3M.
	5M	Set the picture resolution to 5M.
	10M	Set the picture resolution to 10M.
	12M	Set the picture resolution to 12M. (interpolated)
	16M	Set the picture resolution to 16M. (interpolated)
Video Quality	High	The highest quality setting and has the highest data rate, and the lowest level of compression.
	Standard	The default setting. The standard quality and the medium level of compression.
	Normal	The acceptable quality and the highest level of compression.
Flash Strobe	On	The flash is forced to fire in every shot.
	Auto	The flash automatically fires when the lighting is insufficient.
	Off	The flash is disabled.
NightShot	Auto/Off	Enabling this setting allows you to take a photograph with a dark background. Since the shutter speed will slow down when taking photographs at a dark place, we recommend using a tripod to eliminate blurring from hand shake. <b>Warning: Noise increases when NightShot is enabled.</b> <b>Warning: The stabilizer function is disabled when NightShot is enabled.</b>
Video Light	On/Off	This setting allows you to add extra light when the lighting is insufficient during recording video clips.
EV	-2~+2	Manually adjust the exposure to gain better effect when the preview image appears too bright or too dark. A positive value indicates the image will be brighter than usual; while a negative value makes the image dimmer.
ISO	Auto/800/3200	The camera automatically adjusts the sensitivity settings (ranging from ISO 100 to ISO 3200) to the light conditions. ISO 3200 is the most sensitive setting which's generally used in darker situations to get faster shutter speeds, however the image noise is also bigger. (for still images only)

## ● Menu items in Camera mode (continued)

Item	Option	Description
Backlight Compensation	On/Off	Enabling this setting allows you to take a photograph when strong sources of light comes from behind the main subject. The camera will increase the exposure by a predetermined amount.
Selftimer	On/Off	Enable/Disable the selftimer. After the selftimer is turned on, the camera will have ten seconds delay before recording when the Shutter button is pressed. (for still images only)
Continuous Shot	On/Off	Enable/Disable continuous shot function.
White Balance	Auto	The camera automatically adjusts white balance.
	Sunny	This setting is suitable for outdoor recording in sunny weather.
	Cloudy	This setting is suitable for recording in cloudy weather or shady environments.
	Fluorescent	This setting is suitable for indoor recording with fluorescent lamp lighting, or environments with high color temperature.
	Tungsten	This setting is suitable for indoor recording with incandescent lamp lighting, or environments with low color temperature.
Effect	Normal	Make recordings in natural color.
	Black & White	Make recordings in black and white.
	Classic	Make recordings in sepia-toned color.
AF Lock	On	Enabling this setting allows you to make recordings in one spot without zooming in / zooming out or moving around.
	Off	Release lock of auto focus.
Stabilizer	On/Off	Enable/Disable stabilizer function.
Face tracking	On/Off	Enable/Disable face tracking function.
Real-time record WQVGA	On/Off	Enable/Disable the function of producing a smaller copy (WQVGA format) of an original video clip during real time recording.

## ● Menu items in Setting mode

If you want to make the general settings, please do the following:

Press the **MODE** button → Select the **Settings** (  ) mode → Press the **OK** button.

Item	Option	Description
Clock	-	Set date and time.
Language	-	Let you select the language used for OSD.
Date Stamp	On	Print a date mark on each picture.
	Off	Disable date mark.
Beep	Off	Disable beep sound.
	On	Enable beep sound.
	Shutter On	Disable beep sound, but keep Shutter sound.
Icon	On/Off	Enable/Disable OSD icons to display on the screen.
LCD Brightness	1~4	Set LCD brightness.
TV System	NTSC	Set TV system compatibility to NTSC. This option is suitable for America, Taiwan, Japan, and Korea areas.
	PAL	Set TV system compatibility to PAL. This option is suitable for Germany, England, Italy, Netherlands, China, Japan, and Hong Kong.
Flicker	50Hz	Set flicker frequency to 50Hz. (Please see the next page for more details)
	60Hz	Set flicker frequency to 60Hz. (Please see the next page for more details)
Auto Off	Off	Disable Auto-off function.
	3 min	The camera automatically shuts down when staying inactive for over 3 minutes.
Format	Yes	Format the storage medium. Note that all files stored in the medium will be gone.
	No	Cancel action.
Default	Yes	Restore factory defaults. Note that your current settings will be overridden.
	No	Cancel action.

## ● Menu items in Setting mode (continued)

\* Flicker settings table:

Region	England	Germany	France	Italy	Spain	Netherlands	Russia
Setting	50Hz	50Hz	50Hz	50Hz	50Hz	50Hz	50Hz
Region	Portugal	America	Taiwan	China	Japan	Korea	Thailand
Setting	50Hz	60Hz	60Hz	50Hz	50/60Hz	60Hz	50Hz

## ● Battery Life Indicator

Icon	Description
	Full battery
	Moderate battery
	Low battery * The flash strobe and the LED lights will be disabled."
	Empty battery

**Note:** To avoid sudden outage of power supply, you are recommended to replace the battery when the icon indicates low battery life.

## ● Battery Life

Still picture	Video clip
Number of shots	Recording time (minute)
260	60
* shoot every 30 seconds ** flash is off *** resolution is set to 10M	* resolution is set to 1080P 30f (1920x1080@30f) * quality is set to Standard

**Note:** This table is for your reference only. The actual battery life depends on your battery type and recharge level.

## ● Storage Capacity

Memory	Video (min.)				Still picture
	1080i 60f	1080P 30f 720P 60f	720P 30f	WQVGA 240f	
SD card (1GB)	10	12	20	30	400
SD card (2GB)	20	24	40	60	800
SD card (4GB)	40	48	80	120	1600
SD card (8GB)	80	96	160	240	3200
SD card (16GB)	160	192	320	480	6400
SD card (32GB)	320	384	640	960	12800

**Note:** The actual value of capacity may vary (up to ± 30%) depending on the color saturation and complexity of your subject and surroundings.

## ● System Requirements

System requirements are different in different video resolution settings:

Video Resolution	PC system requirements
1080i 60f (1920x1080) @60fps	OS = Windows XP SP2, Vista or above CPU = Pentium 4 3.2GHz Core 2 Dual or above System RAM = 1GB (2GB recommended) Graphic card = 256MB of RAM
1080P 30f (1920x1080) @30fps	
720P 60f (1280x720) @60fps	
720P 30f (1280x720) @30fps	OS = Windows XP SP2, Vista or above CPU = Pentium 4 3.2GHz or above System RAM = 512MB (1GB recommended) Graphic card = 256MB of RAM
WQVGA 240f (432x240) @30fps	

# ● Specifications

Item	Description
Model	10 Mega-pixel camera
Image sensor	10 Mega (4224x2376 pixels)
Resolution	Still image: 3M, 5M, 10M, 12M, 16M Video: HD 1080i 60f (1920x1080) HD 1080P 30f (1920x1080) 720P 60f (1280x720) 720P 30f (1280x720) WQVGA 240f (432x240)
Lens	12X Optical zoom lens
Focus range	Normal: 90cm ~ ∞, Macro focus: 10 ~90 cm
Aperture Range	F1.9 ~ F3.2, f=6.4~73.5mm
Digital zoom	10X (N/A in WQVGA 240f mode)
File format	MOV, JPEG, WAV
Video frame rate	HD 1080i 60f , up to 60fps (1920x1080) HD 1080P 30f , up to 30fps (1920x1080) 720P 60f, up to 60fps (1280x720) 720P 30f, up to 30fps (1280x720) WQVGA 240f, up to 30fps (432x240)
Internal memory	Yes (40MB for storage)
External memory	SD/MMC card (up to 32GB SDHC)
LCD display	3" WIDE LCD (16:9)
TV out	HDMI out (HDTV) Composite out (NTSC/PAL system supported)
Interface	USB 2.0
Voice recorder	Yes
Microphone	Yes; internal (stereo); external mic jack
Speaker	Yes
Nightshot	Yes (both in still image and video modes)
E.I.S.*	Yes, not available in WQVGA 240f *Electronic Image Stabilization.
Battery	NP120 compatible Li-ion rechargeable battery
External Power Supply	AC-input: 100~240V, 50~60Hz, 5V, 2A; DC-output: 5V, 2A

**Note:** Specifications are subject to change without notification.